

A HOLOCENE MOLLUSCAN FAUNA FROM MAROOCHYDORE,
QUEENSLAND

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Wood (1972) described the occurrence of a fossil tree stump (?*Eucallyptus rescruera*) 145 m SW. of the present Maroochy River and 3 km W. of the coast line. This stump was in growth position and overlain by a black mud bed 4·9 m thick containing a fossil marine fauna. It was suggested that the shoreline was close to the site of burial of the tree stump and about 5·2 m below its present level about 7500 years B.P., the age given by radio Carbon for the wood.

The molluscan fauna in the 4·9 m marine bed has now been determined and is listed here. The list includes species which are known to occur at present on tidal flats and in estuaries.

FAUNAL LIST

The molluscan fauna of the middle black mud unit (Wood, 1972) contained 22 species, listed below.

The numbers refer to Queensland Museum catalogue numbers and the specimens have been deposited in that institution.

GASTROPODA

TROCHIDAE

Calliostoma ? *similaris* (Reeve, 1863) Mo5672

POTAMIDIDAE

Velacumantus australis (Quoy and Gaimard, 1834) Mo5673

Pyrasmus ebeninus (Bruguere, 1792) Mo5674

CERITHIIDAE

Cerithium sp. Mo5675

NATICIDAE

Polinices conicus (Lamarck, 1822) Mo5676

Polinices sordidus (Swainson, 1821) Mo 5677

MURICIDAE

Bedeve hanleyi Mo5671

NASSARIIDAE

Nassarius ? *pictus* (Dunker, 1846) Mo5678

Parcanassa ellana Iredale, 1936 Mo5679

Plicarcularia thersites (Bruguere, 1789) Mo5680

BIVALVIA

ARCIDAE

Anadara (Anadara) trapezia (Deshayes, 1839) Mo5681

NOETIIDAE

? *Sheldonella* sp. Mo5682

PLACUNIDAE

Placuna quadrangularis (Retzius, 1788) Mo5683

OSTREIDAE

Saccostrea commercialis (Iredale & Roughley, 1933) Mo5684

Unidentified Mo5685

VENERIDAE

Paphia (Paphia) undulata (Born, 1778) Mo5686

Placamen calophylla (Philippi, 1836) Mo5687

MACTRIDAE

Spisula (Notospisula) trigonella (Lamarck, 1818) Mo5688

TELLINIDAE

Tellina (Homalina) ? deltoidalis Lamarck, 1818 Mo5689

Tellina capsoides Lamarck, 1818 Mo5690

? *Psammotreta (Tellinimactra)* sp. Mo5691

Leporimetis spectabilis (Hanley, 1844) Mo5692

DISCUSSION

All the identified specimens belong to species that have living representatives. Also, all of the positively identified species are characteristic of modern tidal flats and estuaries (Dakin, 1953; Allan, 1959). One species, *Saccostrea commercialis*, also occurs on exposed coasts and its distribution is apparently dependent on the presence of firm substrates for attachment.

Only one of the species, *Velacumantus australis*, has been studied in any detail (Ewers, 1967). This species lives under a variety of tidal conditions and can tolerate a wide range of salinities. Many of the other species are said by MacIntyre (1959) to tolerate a wide diversity of tidal and salinity conditions. Included are *Pyrasmus ebeninus*, *Bedevea hanleyi*, *Parcanassa ellana*, *Anadara trapezia*, *Spisula (Notospisula) trigonella*, and *Saccostrea commercialis*.

The junior author observed *Velacumantus australis*, *Pyrasmus ebeninus* and *Polinices sordidus* on the tidal flats at the present mouth of the Maroochy River.

CONCLUSIONS

It is reasonable to assume that a tree as large as this one grew at or above sea level. It then follows that the deposition of the fossiliferous black mud was the result of a marine inundation associated with a relative rise in sea level sufficient to deposit 4.9 m of sediment. It is not possible to estimate how much relative sea level has changed because the amount of compaction of the sediments is unknown.

The excellent preservation of the wood indicates quick burial by the middle black mud deposits containing the molluscan shells. The fauna indicates that the enclosing sediments were deposited in intertidal, estuarine or sheltered coastal environments characterised by low velocity currents. The black mud unit was deposited in a space of less than 7500 years and the good preservation of the shells is compatible with quick deposition.

LITERATURE CITED

- ALLAN, J., 1959. 'Australian Shells.' (Georgian House: Melbourne).
- DAKIN, W. J., 1953. 'Australian Sea Shores'. (Angus and Robertson: Sydney).
- EWERS, W. H., 1967. Distribution of *Velacumantus australis* (Gastropoda: Potamididae). *Aust. J. Zool.* **15**: 581-91.
- MACINTYRE, R. J., 1959. Some aspects of the ecology of Lake Macquarie, N.S.W., with regard to an alleged depletion of fish, VII. The benthic macrofauna. *Aust. J. Mar. Freshwater Res.* **10**: 351-3.
- WOOD, P. A., 1972. A possible Holocene shoreline at Maroochydore, Queensland. *Qd Govt Min. J.* **LXXIII** (850): 331.